Listing and Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) ~~In a system for processing encoded data symbols representable as a symbol constellation, a~~ A method for use in a decoder, the method ~~providing decoded symbol data~~ comprising the steps of:

delaying received encoded symbol data to produce delayed data;

re-encoding decoded symbol representative data to produce re-encoded symbol data;

feed-forward processing said re-encoded symbol data to produce difference data representative of a difference between successive symbols of said re-encoded symbol data; and

deriving decoded symbol data using said delayed data and said difference data.

2. (original) A method according to claim 1, wherein

said feed-forward processing is exclusive of feed-back processing.

3. (original) A method according to claim 1, wherein

said feed-forward processing prevents error accumulation induced by error-propagation resulting from feed-back processing.

4. (currently amended) A method according to claim 1, including the steps of

comparing candidate values representative of distance between~~,~~ said delayed ~~received encoded symbol data,~~ and said difference data, to determine minimum distance values, and

resolving equality between ~~candidate~~ determined minimum distance values in response to a prior delayed and fed back comparison representative output.

5. (currently amended) ~~In a system for processing encoded data symbols representable as a symbol constellation, a~~ A decoder comprising:

a delay element for delaying received encoded symbol data to produce delayed data;

a re-encoder for re-encoding decoded symbol representative data to produce re-encoded symbol data; and

a processor for,

feed-forward processing said re-encoded symbol data to produce difference data representative of a difference between successive symbols of said re-encoded symbol data; and

deriving decoded symbol data using said delayed data and said difference data.

6. (original) A decoder according to claim 5, wherein

said feed-forward processing is exclusive of feed-back processing.

7. (original) A decoder according to claim 5, wherein

said feed-forward processing prevents error accumulation induced by error-propagation resulting from feed-back processing.

8. (currently amended) A decoder according to claim 5, wherein

said processor includes a decision processor for deriving said decoded symbol data by computing an absolute distance between, said difference data, and a corresponding delayed received encoded symbol of said delayed data.

9. (original) A decoder according to claim 5, wherein said processor includes,

a decision processor for deriving said decoded symbol data by computing an absolute distance using said difference data and said delayed data, and

a comparator for comparing computed absolute distance values to determine a minimum symbol difference value.

10. (currently amended) A decoder according to claim 5, wherein said processor includes,

a decision processor for comparing candidate values representative of distance between, said delayed data, and said difference data, to determine minimum distance values and resolving equality between ~~candidate~~ determined minimum distance values in response to a prior delayed and fed back comparison representative output.

11. (original) A decoder according to claim 10, wherein

said prior delayed fed back comparison representative output is only used in the case of equality between candidate minimum distance values.

12. (original) A decoder according to claim 5, wherein

said processor derives decoded symbol data in a partial response system.

13. (currently amended) ~~In a system for processing encoded data symbols represented in a complex plane as a set of points called a symbol constellation, a~~ A decoder comprising:

a delay element for delaying received encoded symbol data to produce delayed data;

a re-encoder for re-encoding decoded symbol representative data to produce re-encoded symbol data; and

a processor including,

a feed-forward processor for processing said re-encoded symbol data exclusively of feed-back processing in order to produce difference data representative of a difference between successive symbols of said re-encoded symbol data; and

a decision processor for deriving said decoded symbol data by computing an absolute distance using said difference data and said delayed data.

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14. (original) A decoder according to claim 13, wherein said processor includes,

a comparator for comparing computed absolute distance values to determine a minimum symbol difference value.

15. (currently amended) A decoder according to claim 13, wherein said processor includes,

a comparator for comparing candidate values representative of distance between~~,~~ said delayed data~~,~~ and said difference data, to determine minimum distance values and resolving equality between ~~candidate~~ determined minimum distance values in response to a prior delayed and fed back comparison representative output.

16. (original) A decoder according to claim 15, wherein said processor uses a different configuration in resolving equality between candidate distance values than is used for deriving said difference data.

Claim 17 (cancelled).

18. (currently amended) ~~In a system for processing trellis encoded data, trellis~~ A trellis decoding apparatus comprising:

a delay element for delaying received trellis encoded data to produce delayed data;

a re-encoder for re-encoding decoded trellis encoded data using decision data associated with trellis state transitions in response to said trellis encoded data to produce re-encoded subset data;

a processor for,

feed-forward processing said re-encoded subset data to produce subset difference data representative of a difference between successive symbols using past subset outputs in an error propagation-free, feed-forward configuration; and

deriving decoded symbol data using said delayed data and said difference data.

19. (original) A decoder according to claim 18, wherein

said error propagation-free feed-forward configuration of said processor derives decoded symbol data using past subset outputs instead of decoded bits themselves.